

## COMPLETE SET OF PENDING CLAIMS

What is claimed is:

1. (Currently Amended) A chip-scale package comprising:
  - a substrate having a first surface and an opposite second surface, the substrate composed of a controlled thermal expansion material;
  - a memory die having a first surface and an opposite second surface, the first surface of the memory die mounted facing the first surface of the substrate, the memory die is electrically coupled to the substrate using a plurality of rigid underside coupling members, five sides of the memory die are completely exposed and a sixth side of the memory die is exposed for improved heat dissipation, the substrate made from a different material than the memory die and having a coefficient of expansion that matches a coefficient of expansion of the memory die to within six parts per million per degree Celsius or less, wherein the second surface of the memory die remains completely exposed;
  - a plurality of solder balls mounted on the first surface of the substrate in a ball grid array configuration adjacent to the memory die, at least one of the solder balls electrically coupled to at least one of the underside coupling members;
  - a plurality of pads coupled to the second surface of the substrate, each pad electrically coupled to one or more of the plurality of solder balls; and
  - one or more electronic components mounted on the second surface of the substrate in an area opposite of the memory die, wherein the combined distance that an electronic component and the memory die protrude from the substrate is less than the distance that a solder ball and pad protrude from the substrate.
2. (Previously Amended) The chip-scale package of claim 1 further comprising:
  - electrically conductive traces on the first surface to electrically couple at least one solder ball to the memory die directly.

3. (Previously Amended) The chip-scale package of claim 1 wherein the plurality of rigid underside coupling members are a second plurality of solder balls.
4. (Cancelled)
5. (Currently Amended) A chip-scale package comprising:
  - a substrate having a first surface and an opposite second surface;
  - a semiconductor device mounted on the first surface of the substrate using a plurality of electrical conductors, the semiconductor device made from a different material than the substrate, the semiconductor device having a first surface and an opposite second surface, the first surface of the semiconductor device mounted facing the first surface of the substrate, ~~wherein the second surface of the memory device remains completely exposed for improved ventilation~~, the first surface of the semiconductor device is exposed and the other five surfaces of the semiconductor device are completely exposed for improved heat dissipation;
  - a plurality of solder balls mounted on the first surface of the substrate in a ball grid array configuration adjacent to the semiconductor device, at least one of the solder balls electrically coupled to the semiconductor device; and
  - a plurality of pads coupled to the second surface of the substrate, each pad electrically coupled to one or more of the plurality of solder balls which, when a plurality of chip-scale packages are stacked together, causes a solder ball of a first chip-scale package to be uniquely electrically coupled with an electrical conductor of a semiconductor device mounted on a second chip-scale package N levels from the first chip-scale package, where N is an integer greater than two.
6. (Previously Amended) The chip-scale package of claim 5 further comprising:
  - one or more electrical components mounted on the second surface of the substrate in an area substantially opposite of the semiconductor device.
7. (Cancelled)

8. (Previously Amended) The chip-scale package of claim 6 wherein the combined distance that one or more electrical components and the semiconductor device protrude from the substrate is less than the distance that a solder ball and pad protrude from the substrate.
9. (Previously Amended) The chip-scale package of claim 5 wherein the substrate includes a controlled thermal expansion material with a coefficient of expansion that matches the coefficient of expansion of the semiconductor device to within six parts per million per degree Celsius or less.
10. (Cancelled)
11. (Previously Amended) The chip-scale package of claim 5 further comprising:  
electrically conductive traces on the first surface to directly couple at least one solder ball to the semiconductor device.
12. (Original) The chip-scale package of claim 5 wherein the semiconductor device is a silicon memory device.
- 13.-14. (Cancelled)
15. (Currently Amended) A stackable electronic assembly comprising:  
a plurality of identical chip-scale packages, the plurality of identical chip-scale packages arranged in a stacked configuration, each chip-scale package including a substrate having a first surface and an opposite second surface, the substrate composed of a controlled thermal expansion material;  
a semiconductor device coupled to traces on the first surface of the substrate using underside coupling members, five sides of the semiconductor device are completely exposed and a sixth side of the semiconductor device is partially exposed for improved heat dissipation;

a plurality of solder balls mounted on the first surface of the substrate, at least one of the solder balls electrically coupled to the semiconductor device;  
and  
a plurality of pads coupled to the second surface of the substrate, each pad electrically coupled to one or more of the plurality of solder balls  
the substrate made from a different material than the semiconductor device  
and having a coefficient of expansion that matches a coefficient of expansion of the semiconductor device to within six parts per million per degree Celsius or less.

16.-19. (Cancelled)

20. (Currently Amended) A memory module comprising:

a main substrate with an interface to couple the memory module to other devices; and  
one or more stacks of memory devices coupled to a first surface of the main substrate,  
at least one stack of memory devices including  
a plurality of identical chip-scale packages, the plurality of identical chip-scale packages arranged in a stack, each chip-scale package including  
a substrate having a first surface ~~and an opposite second surface~~,  
a memory semiconductor die electrically coupled to traces on the first surface of the substrate, the first surface is partially exposed and the other five surfaces of the memory semiconductor die are completely exposed for improved heat dissipation,  
wherein the substrate is made from a different material than the memory semiconductor die and composed of a controlled thermal expansion material, and  
the substrate has a coefficient of expansion that matches a coefficient of expansion of the memory semiconductor die to within six parts per million per degree Celsius or less.

21.-22 (Cancelled)

23. (Original) The memory module of claim 20 wherein the memory module is a dual inline memory module.
24. (Original) The memory module of claim 20 further comprising:  
one or more stacks of memory devices coupled to a second surface of the main substrate.
- 25.– 29. (Cancelled)
30. (Previously Presented) The stackable electronic assembly of claim 15 further comprising:  
one or more electrical components mounted on the second surface of the substrate in an area opposite of the semiconductor device, wherein the combined distance that an electronic component and the semiconductor device protrude from the substrate is less than the distance that a solder ball and pad protrude from the substrate.
- 31.-34. (Cancelled)
35. (Currently Amended) A chip-scale package comprising:  
a substrate having a first surface and an opposite second surface, the substrate composed of a controlled thermal expansion material; and  
a ~~semiconductor~~ memory device having a first surface ~~and an opposite second surface~~, the first surface of the memory device mounted facing the first surface of the substrate, the memory device is electrically coupled to the substrate, the first surface is partially exposed and the other five surfaces of the memory device are completely exposed for improved heat dissipation, the substrate made from a different material than the memory device and having a coefficient of expansion that matches a coefficient of expansion of the memory device to within six parts per million per degree Celsius or less, wherein the second surface of the memory device remains completely exposed.

36. (Cancelled).

37. (Currently Amended) A chip-scale package comprising:

a substrate having a first surface and an opposite second surface;  
 a semiconductor device mounted on the first surface of the substrate using a plurality of electrical conductors, the semiconductor device made from a different material than the substrate, the semiconductor device having a first surface ~~and an opposite second surface~~, the first surface of the semiconductor device mounted facing the first surface of the substrate, wherein the first surface of the ~~memory~~ semiconductor device remains partially exposed and the other five surfaces of the semiconductor device are completely exposed for improved heat dissipation; and  
 a plurality of solder balls mounted on the first surface of the substrate in a ball grid array configuration adjacent to the semiconductor device, at least one of the solder balls electrically coupled to the semiconductor device.

38. (Cancelled).

39. (Currently Amended) A memory module comprising:

a main substrate with an interface to couple the memory module to other devices; and  
 a plurality of identical chip-scale packages arranged in one or more stacks, each stack coupled to the main substrate, each chip-scale package including  
 a substrate having a first surface and an opposite second surface,  
 a memory die made from a different material than the substrate and having a first surface ~~and an opposite second surface~~, the first surface of the memory die mounted facing the first surface of the substrate, wherein the first surface of the memory die remains partially exposed and the other five surfaces of the memory die are completely exposed for improved heat dissipation, and  
 a plurality of solder balls mounted on the first surface of the substrate in a ball grid array configuration adjacent to the memory die, at least one of the solder balls electrically coupled to the ~~semiconductor device~~ memory die.

40. (Currently Amended) The memory module of claim 39 wherein ~~the second surface and remaining four surfaces of the memory semiconductor device are completely exposed for heat dissipation~~ the chip-scale packages in a stack have identical routing schemes.
41. (New) The stackable electronic assembly of claim 15 wherein the chip-scale packages in a stack have identical routing schemes.
42. (New) The memory module of claim 20 wherein the chip-scale packages in a stack have identical routing schemes.